

# CLIMATE NEWS

From Sheldon Whitehouse, Barbara Boxer, and Jeff Merkley  
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## New Jersey Shore to Face Unprecedented Flooding by Mid-Century



Geoscientists at Rutgers and Tufts universities estimate that the New Jersey shore will experience a sea-level rise of 1.5 feet by 2050 and 3.5 feet by 2100. This is 11 to 15 inches higher than the average global sea-level rise predicted over the century, and could be higher depending on other factors, like the strength of the Gulf Stream. According to the study published in the inaugural issue of the American Geophysical Union journal *Earth's Future*, by mid-century, a one-in-ten year flood at Atlantic City would exceed any recorded flood there, including Superstorm Sandy. "It's clear from both the tide gauge and geological records that sea level has been rising in the mid-Atlantic region at a foot per century," said Rutgers professor Ken Miller. "In the sands of the New Jersey coastal plain, sea level is also rising by another four inches per century because of sediment compaction—due partly to natural forces and partly to groundwater withdrawal." Robert Kopp, also at Rutgers, said it was, "extremely likely that sea-level in New Jersey was rising faster in the 20<sup>th</sup> century than in any century in the last 4300 years." Eight inches of climate-change related sea-level rise in the 20<sup>th</sup> century exposed about 83,000 more people in New Jersey and New York City to flooding during Superstorm Sandy. (Rutgers/2013EF000135)

## Study Shows Global Warming Unpaused, Stuck on Fast Forward

New research by Kevin Trenberth and John Fasullo of the National Center for Atmospheric Research investigates how the warming of the Earth's climate behaved over the past 15 years compared with previous decades. They found that while the rate of increase in average global surface temperatures has decreased since 1998, melting of Arctic ice, rising sea levels, and warming oceans have continued apace. The authors note that the oceans have taken up heat at a faster rate since the turn of the century. Over 90 percent of the overall extra heat goes into the oceans, with only about 2 percent heating the Earth's atmosphere. The myth of the "pause" is based on ignoring 98 percent of global warming and focusing exclusively on the one portion that has slowed. As Trenberth and Fasullo conclude in their study, published in the journal *Earth's Future*, "[Global warming] is very much alive but being manifested in somewhat different ways than a simple increase in global mean surface temperature." (The Guardian/2013EF000165)

## Nine U.S. States Tighten Carbon Dioxide Pollution Rules

Nine New England and mid-Atlantic states—Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont—have adopted regulations to reduce up to 90 million tons of carbon dioxide (CO<sub>2</sub>) pollution from power plants in the region over the next six years. These states are part of the nation's first multi-state "cap-and-trade" program known as the Regional Greenhouse Gas Initiative (RGGI). Power plants in the states must buy "allowances"—which are sold through an auction process—allowing them to emit CO<sub>2</sub>. The revised RGGI standards will lower the existing cap on power plant emissions from the current level of 165 million tons per year to 91 million tons per year starting in 2014. By 2020, power plant emissions from the nine RGGI states will be half of what they were when the program started in 2005. The lower cap is expected to generate additional revenue for the RGGI states, including \$350 million for Massachusetts alone by 2020. These revenues will be used to improve energy efficiency for cities, businesses, and homes, which will ultimately lower energy costs and further reduce CO<sub>2</sub> emissions. (Boston Herald)

## Carbon-Polluted Oceans May Make Fish Anxious

Ocean acidification, due to rising CO<sub>2</sub> emissions, is known to make it difficult for some forms of marine life to survive. As CO<sub>2</sub> dissolves from the atmosphere into the ocean, it forms carbonic acid, which corrodes calcium carbonate-based coral reefs and shellfish. New research from UC San Diego's Scripps Institution of Oceanography and Canada's MacEwan University found that ocean acidification can also cause behavioral changes in individual organisms. Simply stated, ocean acidification can make fish anxious. The study showed that putting juvenile rockfish in slightly more acidic water has the same effect as administering an anxiety-inducing drug. "[The fish] would go to the dark part of the tank and they wouldn't move. They just stayed there," said Scripps marine biologist and study co-author Martín Tresguerres. "If the behavior that we observed in the lab applies to the wild during ocean acidification conditions, it could mean that juvenile rockfish may spend more time in the shaded areas instead of exploring around," Tresguerres said. "This would have negative implications due to reduced time foraging for food, or alterations in dispersal behavior, among others." (The Atlantic/rspb.2013.2509)

